REMARKS/ARGUMENTS

Claims 1-27 are pending and currently under examination. No claim amendments, cancellations, or additions are made, therefore claims 1-27 remain pending and under examination after entry of this paper. The Examiner notes that in the Response filed 01/25/05 an incorrect application number appears on pages 3-16. Applicant thanks the Examiner for pointing this out and apologizes for the error in the page header of the previous response.

Rejections under 35 U.S.C. §112, 1st Paragraph – Enablement:

Claims 1-27 were rejected under 35 U.S.C. §112, 1st paragraph as not being enabled by the specification.

The Action maintains that the specification does not enable one of skill in the art to make and used an isolated polynucleotide which encoding a polypeptide having RuvB activity.

Applicants respectfully disagree for the reasons of record, which will not be repeated here. Additional RuvB plant homologues have been identified, demonstrating the conservation of RuvB homologues and activity in plants, an NCBI keyword index search is provided in Appendix D. Some "duplicate" entries are present, since genomic, BACs, cDNAs, and mRNAs may be deposited by one or multiple groups, however, the search indicates the identification of RuvB homologues in *Arabidopsis*, rice, cotton, and apple.

Further, plant Ruv homologues and associated complexes have been associated with DNA repair and homologous recombination, as evidenced in Appendix E. Appendix E contains Fritsch *et al.* WO 2004/003013, in which RuvB homologues (Rvb1, Rvb21, and Rvb22) were identified in Arabidopsis by screening for a hyperrecombination phenotype in a T-DNA activation tagged library (Example 1, starting page 17). A mutant was isolated, sm22, and the T-DNA tagged insert isolated, cloned, and identified as an Ino80 homologue. In yeast, INO80 is part of a

large complex containing Rvbs and Arps (Example 1, page 20, 2nd paragraph). Fritsch *et al.* saw co-regulation of INO80 complex components in the sm22 background (Example 1, page 22, 2nd paragraph), and conclude that this supports "the use of *Arabidopsis* Rvb1, Rvb21, and Rvb22 and the *Arabidopsis* Arp protein orthologues to manipulate homologous recombination frequency in plants".

Using GAP analyses, the corn sequences of the present application were compared to the *Arabidopsis* Rvb sequences in Fritsch et al. The Arabidopsis Rvb1 homologue (WO 2004/003013 SEQ ID NOs: 4 and 5), are most closely related. Appendix F provides a summary of the GAP results, and the GAP alignments for SEQ ID NOs: 3 and 4 vs. *Arabidopsis* Rvb1 (CQ760237, WO 2004/0030313 SEQ ID NO: 4) and encoded polypeptide (WO 2004/0030313 SEQ ID NO: 5).

The disclosed plant sequences, coupled with other known RuvB homologues, confirming data from Arabidopsis, and the availability of routine assays for functional RuvB, polynucleotides having 80%, 85%, and 90% sequence identity could be made and used one of skill in the art, at the time of filing, without undue experimentation. Therefore the rejection of claims 1-27 for lack of enablement under 35 U.S.C. §112, 1st paragraph should be withdrawn.

Rejections under 35 U.S.C. §112, 1st Paragraph – Written Description:

Claims 1-27 were rejected under 35 U.S.C. §112, 1st paragraph as not having written description support in the specification.

The Action asserts that the specification does not reasonably convey to one of skill in the art that the inventors had, at the time of filing, possession of an isolated polynucleotide which encoding a polypeptide having RuvB activity, wherein the polynucleotide has 80%, 85%, and 90% sequence identity with the disclosed sequences.

Applicants respectfully disagree for the reasons of record, which will not be repeated here. Evidence has been provided in Appendices D-F, and discussed in

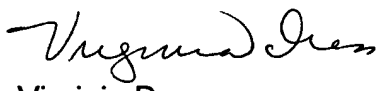
response to the rejection for lack of enablement. Further, Applicants provide Appendix G, a summary of the percent sequence identity as determined by GAP alignments for the corn RuvB polynucleotides and polypeptides in the instant application. Applicants have provided five full-length RuvB polynucleotide sequences from corn, each of which encodes a full-length polypeptide. The polynucleotides have about 87-100% sequence identity to each other, while the encoded polypeptides have >97% sequence identity. Applicants further disclosed conserved domains in Example 4, and provided guidance on conservative amino acid substitutions (*e.g.*, page 8, lines 1-8). Applicants have demonstrated possession of the invention.

The Federal Circuit has made it clear that sufficient written description requires simply the knowledge and level of skill in the art to permit one of skill to immediately envision the product claimed from the disclosure. *Purdue Pharm L.P. v. Faulding In.*, 230 F.3d 1320 1323, 596 USPQ2d 1481, 1483 (Fed. Cir. 2000) ("One skilled in the art must immediately discern the limitations at issue in the claims."). The written description requirement does not require the literal recitation of each and every species. One of skill in the art can immediately envision the product claimed from the disclosure in the current application, therefore the rejection of claims 1-27 for lack of written description under 35 U.S.C. §112, 1st paragraph should be withdrawn.

CONCLUSION

In light of the foregoing remarks and amendments, it is believed that claims 1-27 are in condition for allowance. Withdrawal of the outstanding rejections and allowance of all of the remaining claims is respectfully requested.

Respectfully submitted,



Virginia Dress
Agent for Applicant(s)
Registration No. 48,243

PIONEER HI-BRED INTERNATIONAL, INC.
Corporate Intellectual Property
7250 N.W. 62nd Avenue
P.O. Box 0552
Johnston, Iowa 50131-0552
Phone: (515) 270-4192
Facsimile: (515) 334-6883